HYPERFINE STRUCTURE OF NITROSYL IODIDE (INO)

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INO or Nitrosyl iodide is the simplest form among the family of INOx (x=1 to 3), which may be viewed as important temporary reservoir species for iodine and nitrogen oxides. Since the corresponding chlorine and bromine species have already been well characterized by microwave and millimeter-wave spectroscopy, spectroscopic information of the iodine compounds is very limited. We have successfully measured submillimeter-wave spectrum of INO in 2016, without resolving any hyperfine splitting due to iodine and nitrogen nuclei.[a] Completion of this task is mandatory for full understanding of the molecule. We have observed millimeter-wave spectra of INO at millimeter-wave region. Hyperfine splitting were observed at the frequency of around 150 GHz. The electric quadrupole coupling constants for iodine nucleus was determined for the first time.

[a] S. Bailleux, D. Duflot, S. Aiba, S. Nakahama and H. Ozeki, hem. Phys. Lett. **650**, 73-75 (2016)